

U.S. Serial No. 09/767,707

ASA-959

IN THE CLAIMS

1. (Canceled) .

2. (Currently amended) A network routing apparatus for determining a routing address of a packet in a network on the basis of header information of said packet and routing said packet to said routing address, comprising:

a plurality of packet forwarding units for performing a process of forwarding input packets;

a packet distribution unit for distributing input packets supplied from an interface of a router into said packet forwarding units in order or into empty ones of said packet forwarding units which do not now perform processing; and

a packet rearrangement unit for performing rearrangement of packets in inputting order of the packets which are subjected to said packet forwarding process by said packet forwarding units;

wherein said packet distributing unit determines one of said packet forwarding units for distributing a packet on the basis of a header condition of said packet so that a series of packets to be forwarded from a packet sender address to a forwarding address are not arranged in ~~reversed~~ reverse order

U.S. Serial No. 09/767,707

ASA-959

of their input order even in a case where said packets are not rearranged by said packet rearrangement unit.

3-7. (Canceled)

8. (Currently amended) A network routing apparatus for determining a routing address of a packet in a network on the basis of header information of said packet and routing said packet to said routing address, comprising:

a plurality of packet forwarding units for performing a process of forwarding input packets;

each of said packet forwarding units including:

a packet header operating mechanism for extracting a header of a packet and rewriting said header;

a plurality of packet retrieving units for performing packet header retrieval while said packet header extracted by said packet header operating mechanism is used as a key;

a retrieval packet distribution mechanism for distributing packet headers to said plurality of packet retrieving units; and

a retrieval packet rearrangement unit for rearranging packet header retrieval results supplied from said plurality of packet retrieving units;

U.S. Serial No. 09/767,707

ASA-959

wherein said retrieval packet distribution mechanism determines a packet retrieving unit used for distribution of packets on the basis of header conditions of said packets so that the order of said packets is not reversed from their input order among a series of packets to be forwarded from a packet sender address to a forwarding address even when said packets are not rearranged by said retrieval packet rearrangement unit.

9. (Previously presented) A network routing apparatus for determining a routing address of a packet in a network on the basis of header information of said packet and routing said packet to said routing address, comprising:

a plurality of packet forwarding units for performing a process of forwarding input packets;

each of said packet forwarding units including:

a packet header operating mechanism for extracting a header of a packet and rewriting said header;

a plurality of packet retrieving units for performing packet header retrieval while said packet header extracted by said packet header operating mechanism is used as a key;

U.S. Serial No. 09/767,707

ASA-959

a retrieval packet distribution mechanism for distributing packet headers to said plurality of packet retrieving units; and

a retrieval packet rearrangement unit for rearranging packet header retrieval results supplied from said plurality of packet retrieving units;

wherein said packet headers are numbered in sequence by said retrieval packet distribution unit when said packet headers are distributed to said packet retrieving units by said retrieval packet distribution unit;

said packet retrieving units retain said packet headers with said packet header sequence numbers while said packet retrieving units perform said packet header retrieving process; and

said retrieval packet rearrangement unit rearranges retrieval results in the order of said packet header sequence numbers.

10-11. (Canceled)

12. (Previously presented) A network routing apparatus for determining a routing address of a packet in a network on

U.S. Serial No. 09/767,707

ASA-959

the basis of header information of said packet and routing said packet to said routing address, comprising:

a plurality of packet forwarding units for performing a process of forwarding input packets;

each of said packet forwarding units including:

a packet header operating mechanism for extracting a header of a packet and rewriting said header;

a plurality of packet retrieving units for performing packet header retrieval while said packet header extracted by said packet header operating mechanism is used as a key;

a retrieval packet distribution mechanism for distributing packet headers to said plurality of packet retrieving units; and

a retrieval packet rearrangement unit for rearranging packet header retrieval results supplied from said plurality of packet retrieving units;

wherein said packet retrieving units classify packets on the basis of header conditions of said packets and outputting numbers specifying results of the classification as retrieval results;

said retrieval packet rearrangement unit measures packet transfer rates in accordance with said numbers specifying said

U.S. Serial No. 09/767,707

ASA-959

classification results of said packets received from said
packet retrieving units; and

when a quantity of input packets exceeds a predetermined
value, a process of aborting packets, a process of aborting
packets easily at the time of traffic congestion or a process
of suppressing an output rate of the packets to prevent the
output rate of the packets from exceeding a predetermined
value is executed in accordance with results of said
measurement.